EXECUTIVE SUMMARY

The infant mortality rate is a fundamental indicator of a community's health and well-being. Few events are as tragic as the death of an infant. This report is the product of the Infant Mortality Review. It summarizes trends in infant mortality in King County, describes factors contributing to infant deaths and suggests strategies for preventing these deaths in the future. The report draws upon two major sources of information: birth and death certificates and the findings of a case-by-case detailed review of all infant deaths occurring between 1992-1994. The key findings of the report include:

- The infant mortality rate in King County in 1994 (the most recent year for which data are available) was 6.3 per 1000 live births. Provisional data shows that the infant mortality rate for King County in 1995 was 5.6 per 1000 live births. The 1994 Seattle rate was 4.8 per 1000, the Washington rate was 6.2 per 1000 and the United States rate was 7.9 per 1000.

- The infant mortality rates in King County and Seattle have declined substantially since 1980, especially since the late 1980s. In the County, the rate decreased by 40 percent since 1980 and in Seattle, by an even greater 63 percent. Since 1988, the county rate has decreased by 30 percent and the city rate by 61 percent.

- The leading causes of infant death were premature births, medical complications during and after birth, congenital anomalies and SIDS (Sudden Infant Death Syndrome). The declining SIDS rate was the largest contributor to the reduction in overall infant mortality.

- Several factors have contributed to the decrease in infant deaths:
    - ♦ A decline in risk factors for infant mortality as measured by vital statistics data, including inadequate prenatal care, tobacco and alcohol use, teen births and unmarried parents

    - ♦ Appreciation of the association of prone (on the stomach) infant sleeping position and SIDS, leading to changes in infant sleep position

    - ♦ Advances in the delivery of health and social services to pregnant women and infants, including expansion of Medicaid eligibility, the First Steps program, outreach efforts to pregnant women and families with infants, a community system of screening and referral to facilitate pregnant women getting prenatal care and increased public health nurse home visits

    - ♦ Important advances in the care of sick newborns such as the use of the medication surfactant, improvements in neonatal intensive care and better treatments for infants born with congenital anomalies.

  Infant mortality and risk factors for infant death remained associated with poverty, although poverty may have become less influential in recent years. The rate of infant death has declined substantially in high poverty areas of the county since the mid 1980s. During the 1984-86 period, infants living in high poverty areas had an infant mortality rate twice that of infants living in low poverty tracts. By the 1992-94 period, the rate in the high poverty areas was only 1.4 times higher.

- African and Native Americans remained at higher risk of dying as infants, but the gap between their infant mortality rates and that of whites diminished substantially. The ratio between African American and white rates reached a peak of 3.1 in the 1988-1990 period and then declined to 1.9 by the 1992-1994 period. The infant mortality gap between African Americans and whites decreased from 13.9 to 5.0 per 1,000 births. While African Americans continue to experience higher rates of risk factors for infant death than whites, the differences have decreased since 1990.

- The infant mortality rate during the 1992-94 period was significantly higher in the South Seattle and South County regions than in the North Seattle and North/East County regions. The South County rate stopped declining in recent years while the other regions continued to show improvements. As a result of these divergent trends, the South Seattle, whose rate was 62% higher than South County's in the 1986-88 period, reached parity with South County by 1992-94. In particular, South County lagged behind in a reduction in deaths due to SIDS and prematurity. South Seattle showed impressive improvements in its SIDS death rate.

- Among small areas within the county, infant mortality rates in Central and Southeast Seattle were 1.8 and 1.6 times higher than the county rate. They were the only areas to significantly exceed the county average during the 1990-1994 period.

- The case-by-case review examined 247 cases between 1992-1994 and identified factors which contributed to death in 49 percent of them. Factors considered highly important in causing the death and highly modifiable were present in 29 cases (12 % of all those reviewed). The Review has considered factors associated with inadequate support services, medical care during labor and delivery, and infant sleep conditions in detail. Future work will focus on the areas of preterm labor, access to prenatal care, medical care of the infants, and maternal substance abuse.

- The review of cases with inadequate support services during pregnancy revealed instances of:
    - ♦ Lack of referral of high risk clients to public health nurses or CPS (Child Protective Services) for evaluation and follow-up
    - ♦ Inadequate case tracking and follow-up by public health nurses
    - ♦ Poor coordination and lack of appropriate cross-referrals between multiple service providers, especially between CPS and public health nurses
    - ♦ Lack of referral to prenatal care and inadequate follow-up to assure receipt of prenatal care
    - ♦ Failure of CPS to remove infants from families that were unable to care for them and premature return of infants to families prior to rehabilitation
    - ♦ Administrative problems with CPS case management, including lack of coordination between CPS and Child Welfare System, poor internal CPS communication and inadequate supervision of case workers
    - ♦ Lack of screening, appropriate treatment options and monitoring of CPS contracts for substance-abusing pregnant and parenting women

- Case review generated concerns about the medical care received by some mothers or infants during labor and delivery, including:

- Delay or lack of maternal transfer to a hospital capable of providing an appropriate level of care despite clear indications of the need for transfer
- Delay in arrival of pediatric care provider or delay in notifying pediatric care provider of the need for attendance at delivery
- Problems with electronic fetal monitoring during labor such as inadequate monitoring or failure to recognize or act on signs of fetal distress detected by monitoring
- Technical errors in medical procedures, including lack of early recognition of herpes simplex and group B streptococcus infections and inadequate resuscitation of compromised newborns

- Examples of modifiable unsafe sleeping conditions included broken cribs and dangerous non-crib sleep locations (e.g. crowded adult bed, soft sofa with pillows, adult bed with dry-cleaning bags)

- Other highly important and highly modifiable conditions included:
  - failure to seek necessary medical care
  - social factors, such as placing excessive workplace physical demands on pregnant women, substance abuse, crowded housing and other poverty-related factors
  - medical problems, such as infections during pregnancy, incompetent cervix, obstetrical complications (e.g. prolonged second stage of labor)
  - inadequate number and delayed onset of prenatal visits
  - lack of patient education on symptoms of preterm labor, child safety, and CPR

- The Review also identified social, economic and behavioral issues which, while not directly contributing the deaths among the cases examined, were noteworthy for their potential to cause adverse consequences for mothers and infants. These issues included low income, lack of social support, stress, domestic relationship problems, housing problems, unemployment, lack of transportation, child abuse, substance abuse, unplanned pregnancies, underdeveloped parenting skills and unsafe home conditions.

CONCLUSIONS

The infant mortality rate in King County has entered a period of rapid decline. The encouraging trend may be explained by reductions in risk factors for infant death through expanded health services for pregnant women, advances in medical care and changes in infant sleep position. The infant mortality gap between African Americans and whites has diminished, although both African and Native Americans continue to experience higher rates of infant mortality and risk factors for infant death. The improvements in infant mortality have not been uniform across the regions of King County; South Seattle has made impressive gains in recent years while South County has lagged behind.

Further progress in reducing infant deaths will come from collaborative work from many sectors of our community. Strategies should focus on assuring access to prenatal care and maternity support services, reducing substance abuse, improving coordination of services by multiple providers, assuring comprehensive follow-up of high-risk clients, improving the quality of medical care during labor and delivery, and strengthening the capacity and accountability of CPS to protect infants.